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ADDITIONS TO THE FLORA OF ANAMALAI HILLS, COIMBATORE DISTRICT, TAMIL NADU

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ABSTRACT

The paper deals with an additional list of 163 species comprising 61 families of flowering plants and Pteridophytes, to the Flora of Anamalai Hills,—"A Survey of the Flora of the Anamalai Hills in the Coimbatore District, Madras Presidency by C.E.C. Fischer in *Rec. bot. Surv. India* 9(1) : 1-218. 1921".

INTRODUCTION

The present study is based on the collections made by the authors during the years 1961-1963. This study has been undertaken with the hope of revising Fischer's Flora of Anamalai Hills. But owing to the various reasons the revision of this flora could not be undertaken at present. The authors could collect 617 species comprising 399 genera and 126 families. But Fischer (1921) has reported 1,843 species comprising of 831 genera and 149 families excluding Bryophytes and Fungi. Though the areas explored by Fischer has been taken up for botanical exploration by the authors, all the areas could not be explored. However, the following regions have been more or less thoroughly explored. They are, foot of hills from Aliyar Dam to Attakatti ; Navamalai area, forests around Attakatti, Water falls Estate area, Waverly Estate area, Poonachi and Lower Poonachi area, Andiparai shola (partly), Kaverkal, forests near Iyerpadi and Valparai, Cinchona Plantation area, forest slopes upto Topslip. Attempts have been made to collect plants from Akkamalai grass hills, Kariyanshola and Thunkadavu area, but could not be thoroughly explored due to unavoidable circumstances. Beside these regions, the following regions are yet to be explored thoroughly —slopes near Udumalpet, Thirumurthiswami Koil area, Amaravathi R. F., Kukkal Block, Pichamalai area, forests near Mudis etc.

Though the authors have collected 617 species comprising 126 families, only the additions namely 163 species comprising 61 families alone are enumerated below. In the additional list, some of the introduced as well as ornamental plants have also been included because they are almost naturalised or running wild in these mountains.

The following data are given for each species—critical notes, flowering or fruiting, month of collection, locality and field number. The classification of Bentham and Hooker is followed with delimitation of Hutchinson's classification in splitting up of a few families. The species under each family are arranged in an alphabetical order. Every attempt has been made to bring the nomenclature upto date.

Species not reported by Fyson (1932) in "The Flora of the South Indian Hill Stations" are indicated by an asterisk mark.

The name of the collector for all the field numbers is *J. Joseph*.

ENUMERATION

NYMPHAEACEAE

Nymphaea nouchali Burm. f.

Aquatic perennial herb, abundant in ponds, probably introduced from plains, flowers blue, Jan. 1963, Pannimedu, 15569.

PAPAVERACEAE

Argemone mexicana Linn.

Common prickly weed, flowers yellow, Jan. 1963, Attakatti, 15613.

BRASSICACEAE (CRUCIFERAE)

***Rorippa indica** (Linn.) Hiern.

Nasturtium indicum DC.

Common herb in moist places, flowers yellow, Jan. 1962, Mount Stouert, 13590.

BIXACEAE

***Bixa orellana** Linn.

Ornamental small tree, cultivated near the Travellers' Bungalow, flowers purple, June 1962, Attakatti, 14141 ; fruits, Jan. 1962, 13748.

POLYGALACEAE

Polygala rosmarinifolia Wt. & Arn.

Small herb with yellow flowers, flowering and

fruiting, July 1961, Attakatti, 12668; June 1962, 14145.

CARYOPHYLLACEAE

***Drymaria cordata** Willd. ex Roem. & Schult.

Prostrate glabrous herb, rooting at nodes, flowers, April 1963, Kurungumudi, 16227.

D. villosa Cham. & Schlecht.

Diffuse villose herb with long septate hairs, new record for South India, flowering, Oct. 1961, Andiparai Shola, 13209.

THEACEAE

Camellia japonica Linn.

Ornamental shrub with showy red flowers, commonly cultivated, flowering June 1962, Waverly Estate, 14205.

Ternstroemia japonica Thunb.

Small tree with pale yellow flowers, flowering, April 1963, Akkamalai R. F. 16164.

MALVACEAE

Abelmoschus angulosus Wall. ex Wt. & Arn.

Hibiscus setinervis Dunn

Erect tall herb with rose flowers, flowering and fruiting Jan. 1963, Akkamalai R.F., 15548, Andiparaishola, 15603.

***Malvastrum coromandelianum** (Linn.) Garcke

M. tricuspidatum A. Gray

Small erect herb with yellow flowers, flowering and fruiting, July 1961, Lower Poonachi, 12760.

Sida rhombifolia Linn.

Common herb, flowers yellow, flowering and fruiting, Jan. 1962, Mount Stouert, 13587, 13598.

TILIACEAE

***Grewia emarginata** Wt. & Arn.

Common shrub with yellow flowers, flowering and fruiting, Sept. 1961, Anamalais 13319.

BALSAMINACEAE

Impatiens scabriuscula Heyne

Tall slender succulent herb, glandular pubescent all over, flowers pale pink, flowering and fruiting, Oct. 1961, Mount Stouert, 13387.

OXALIDACEAE

Oxalis latifolia H. B. & K.

Common bulbiferous herb in moist places, flowers pink, flowering, July 1961, Waterfalls Estate forest, 12794.

CELASTRACEAE

Gymnosporia heyneana Lawson

Robust climbing shrub, flowers greenish yellow, flowering, Jan. 1962, Lower Poonachi, 13800.

HIPPOCRATACEAE

Salacia fruticosa Lawson

Climbing shrub, flowers small, yellow in cymes, very rare, flowering, Jan. 1963, Valparai, 15573.

VITACEAE

Cissus pallida Planch.

Vitis pallida Wt. & Arn.

Common shrub, flowering and fruiting, July 1961, Attakatti forest, 12678.

PAPILIONACEAE

Canavalia virosa (Roxb.) Wt. & Arn.

C. virosa (Roxb.) Wt. & Arn. var. *mollis* Gamble

Densely pubescent climber, flowers pink, flowering, Oct. 1961, Aliyar Dam site, 13298.

***Centrosema pubescens** Benth.

Introduced climber, running wild and naturalised, flowering and fruiting, Jan. 1962, Kariyanshola, 13832.

***Crotalaria anagyroides** H. B. & K.

Introduced but naturalised herb with golden yellow flowers, flowering and fruiting, July 1961, Lower Poonachi, 12771.

***C. candicans** Wt. & Arn.

C. madurensis Wt.

Common shrub, pubescent, flowers golden yellow with pinkish brown standard petal, flowering and fruiting, Jan. 1962, Foot of Anamalai Hills, 13744.

C. mucronata Desv.

C. striata DC.

Undershrub with terminal elongated raceme of yellow flowers, flowering and fruiting, June 1962, Navamalai, 14172.

C. mucronata Desv. var. **acutifolia** (Trim.) comb. nov.

C. striata DC. var. *acutifolia* Trim.

It can be easily distinguished from *C. mucronata* Desv. by the elliptic nature of leaflets with distinct mucronate tips; flowering and fruiting, Jan. 1963, Pannimedu, 15568; Lower Poonachi, 15621.

C. salicifolia Heyne

Common undershrub with simple leaves, flowering, Oct. 1961, Kavarkal, 13225.

C. saltiana Anders.

Common erect herb with very narrow leaflets and bright yellow flowers having wing petals as long as keel petals, flowering and fruiting, Jan. 1963, Thonimudi, 15560.

Indigofera hirsuta Linn.

Common herb with long peduncled axillary inflorescence, flowers and fruits, Oct. 1961, Mount Stouert, 13380.

Mucuna prurita Hook.

M. pruriens Bak.

Gregarious climber with long inflorescence, flowering, Oct. 1961, Poonachi, 13254.

Parochetus communis Buch.-Ham. ex D. Don

Common creeper in moist localities, rooting at nodes, flowers pale blue, Oct. 1961, Akkamalai, 13403.

Phaseolus dalzellii T. Cooke

P. pauciflorus Dalz.

Slender glabrous climber with pale yellow flowers, Jan. 1962, Attakatti forest, 13571.

Pseudarthria viscida Wt. & Arn.

Common viscid undershrub, flowers pinkish, flowering and fruiting, Oct. 1961, Attakatti forest 13274; Mount Stouert, 13358.

Shuteria vestita Wt. & Arn.

Slender climbing herb with axillary inflorescence, flowers pinkish, flowering and fruiting, Jan. 1963, Akkamalai, 13779, 15538.

***Smithia bigemina** Dalz.

Annual slender herb with yellow flowers, Oct. 1961, Waverly Estate forest, 13081.

CAESALPINACEAE

Cassia didymobotrya Fresn.

Introduced evergreen shrub, running wild and cultivated in the coffee and tea estates for shade, flowers yellow in long racemes exceeding the leaves, flowering and fruiting, Oct. 1961, Water Falls estate, 13231.

MIMOSACEAE

Mimosa pudica Linn.

Prickly prostrate herb in moist localities, flowers pinkish in globose heads, Oct. 1961, Mount Stouert, 13344.

ROSACEAE

Eriobotrya japonica (Thunb.) Lindl.

Tree, commonly cultivated, running wild also, inflorescence densely softly woolly, flowering, July 1961, Lower Poonachi, 12780.

MYRTACEAE

***Eucalyptus robusta** Sm.

Common tree with alternate leaves, inflorescence axillary, peduncles flattened, flowers 5-10 in umbels, July 1961, Attakatti forest, 12751.

MELASTOMATACEAE

***Sonerila versicolor** Wt.

Common herb with angular pinkish stems and glabrous capsules, flowers and fruits, Sept. 1963, Thonimudi, 15554.

LYTHRACEAE

***Rotala fimbriata** Wt.

Ammannia pentandra Roxb. var. *fimbriata* C. B. Cl.

Common herb near water sources, rooting at nodes, flowers minute, pink, axillary, Oct. 1961, Poonachi, 13240.

***R. illecebroides** (C. B. Cl.) Kohne

Ammannia pentandra Roxb. var. *illecbroides* C. B. Cl.

Very small filiform herbs in marshy places, flowers very minute in the axils of leaves, Jan. 1962, Attakatti forest, 13561.

PASSIFLORACEAE

Passiflora edulis Sims

Tendril climber, cultivated and running wild also, flowers white, fruits edible, April 1963, Cardamom plantations, Valparai, 16214.

CUCURBITACEAE

***Colocynthis citrullus** (Linn.) O. Ktze.

Citrullus vulgaris Schrad.

Cultivated at lower altitudes and plains for its edible fruits, found an escape also, leaves deeply lobed with pinnatifid segments, flowers yellow, June 1962, Navamalai, 14175.

***Cucumis sativus** Linn.

Scabrid tendril climber with yellow flowers, young fruits with bristle like hairs, flowering and fruiting, Oct. 1961, Mount Stouert, 13349.

BEGONIACEAE

***Begonia dregei** Otto & Dietr.

Introduced but naturalised small succulent herb near water sources, flowers creamy white with pinkish tinge, Oct. 1961, Waterfalls Estate forest, 13232.

APIACEAE
(UMBELLIFERAE)

Heracleum rigens Wall. ex DC.

Erect pubescent herb, rare, flowering, July 1961, Attakatti forest, 12754.

ARALIACEAE

Schefflera stellata Harns.

Heptapleurum stellatum Gaertn.

Small tree with obovate leaflets, flowers in umbels of terminal panicles, July 1961, Attakatti forest, 12681.

RUBIACEAE

***Coffea robusta** Lindn.

Big shrub or small tree with white flowers, cultivated for the berries, flowering June 1962, Waverly Estate, 14202; fruits, Jan. 1963, 15625.

***Mussaenda laxa** (Hook. f.) Hutch. ex Gamble
M. frondosa Linn. var. *laxa* Hook. f.
Scandent shrub with softly hairy branchlets and leaves, flowers yellowish red in lax cymes, July 1961, Attakatti forest, 12725.

***Oldenlandia diffusa** Roxb.
Prostrate herb with axillary sessile solitary flowers, flowering and fruiting, July 1961, Waterfalls Estate, 12699.

***O. eualata** Gamble
Small shrub with large leaves, flowers dull white in panicles, flowers and fruits, Jan. 1963, Akkamalai, 13768, 15534.

***Richardia scabra** Linn.
Introduced but naturalised hispid herb, flowers white in terminal sessile congested capitate clusters, flowers and fruits, July 1961, Waterfalls Estate forest, 12716.

ASTERACEAE
(COMPOSITAE)

***Acanthospermum hispidum** DC.
Introduced but naturalised erect herb with yellow flowers and spinescent achenes, Oct. 1961, Poonachi, 13242.

***Blumea virens** DC.
Erect glabrous slender herb, flower heads yellow, Jan. 1963, Puduthottam Estate forest, 15595.

***Centipeda minima** (Linn.) A. Br. et Aschers.
Prostrate small herb in moist places, flower heads small, globose, yellow, June 1962, Attakatti forest, 14169.

Centratherum phyllolaenum (DC.) Benth. ex C. B. Cl.
Stout herb in shades, flowers heads violet, Sept. 1961, Anamalai, 13322.

C. ranghacharii Gamble
Common slender herb with pinkish flower heads, Jan. 1963, Akkamalai R. F., 15543; April 1963, Akkamalai Grass hills, 16196.

***Emilia flammea** Cass.
Scabrid herb with serrated leaves, flower heads pinkish, Oct. 1961, Akkamalai, 13300.

***E. ramulosa** Gamble
Slender herbs, leaves nearly entire with recurved margins, flower heads pinkish, April 1963, Akkamalai Grass hills, 16187.

Erigeron karvinskianus DC.
Slender herbs with leafy wiry stems and white flower heads, Oct. 1961, Waverly Estate forest, 13073.

Eupatorium glandulosum H. B. & K.
Introduced herb but naturalised, leaves rhomboid, crenate-dentate except the basal margin, flower heads white, April 1963, Akkamalai R. F., 16178.

E. odoratum Linn.
Common herb, leaves triangular-ovate, entire at the apex, flower heads white, Oct. 1961, Poonachi, 13235.

***Glossocardia linearifolia** Cass.
G. bosvallea DC.
Common herb with spreading branches and much dissected leaves in dry localities and in rocky places, flower heads yellow, Oct. 1961, Attakatti forest, 13273.

***Montanoa bipinnatifida** C. Koch.
Tall shrub with palmately lobed leaves and showy flower heads, a garden escape, ray florets white and disc florets yellow, fruiting heads globose, Jan. 1962, Monica Estate, 15590.

Senecio cineraria DC.
An ornamental tall herb and running wild also, ray florets white and disc florets yellowish, June 1962, Waverly Estate, 14208.

***Synedrella nodiflora** (Linn.) Gaertn.
Erect herb with axillary and terminal inflorescence, ray florets yellow, Oct. 1961, Mount Stouert, 13347.

Tithonia diversifolia (Hemsl.) A. Gray
Tall herb with deeply lobed long petioled leaves and big showy yellow flower heads, ray florets very long, introduced but naturalised, Oct. 1961, Poonachi, 13241.

LOBELIACEAE

Lobelia leschenaultiana (Presl) Scottsh.
L. excelsa Lesch.
A tall robust pubescent undershrub with hollow stems, inflorescence very long and dense, flowers white tinged with pink, anthers glabrous, Jan. 1962, Akkamalai, 13750.

***L. zeylanica** Linn.
Common prostrate herb with flat stems in moist localities among grasses, flowers bluish pink, flowering and fruiting, April 1963, Akkamalai R.F., 16185.

MYRSINACEAE

***Ardisia sonchifolia** Mez
A. villosa var. *obtusa* C. B. Cl.
Tall shrub or small tree with drooping inflorescence, flowers greenish yellow with reddish tinge at tips of corolla, March 1961, Waverly Estate 12308; April 1963, Cardamom Plantation-Valparai, 16209.

OLEACEAE

***Jasminum auriculatum** Vahl

Climbing shrub, flowers white, July 1961, Waterfalls Estate, 12806.

APOCYNACEAE

***Allamanda cathartica** Linn. var. **nobilis** Bailey

A. cathartica Linn.

Ornamental shrub with whorled leaves, flowers yellow, June 1962, Waverly Estate, 14206.

Ervatamia caudata Gamble

Common shrub, with white flowers, Jan. 1963, Valparai, 15572.

ASCLEPIADACEAE

***Ceropegia candelabrum** Linn.

Fairly common slender climber with lanceolate leaves, flowers yellowish with pink striations, Oct. 1961, Mount Stouert, 13384; Jan. 1963, Akkamalai R. F., 15527.

Hoya ovalifolia Wt. & Arn.

Common climber with elliptic ovate leaves, flowers in axillary umbels, pale yellow, Jan. 1962, Top Slip, 13821.

BORAGINACEAE

Cynoglossum meeboldii Brand.

C. denticulatum A. DC. var. *zeylanicum* C. B. Cl.

Erect strigose villous herb, flowers white with blue tinge, July 1961, Waterfalls Estate forest, 12706.

CONVOLVULACEAE

Argyreia hirsuta Wt. & Arn.

Strong climber, tomentose all over, inflorescence long peduncled, flowers rosy-red, sparsely long hairy, Oct. 1961, Andiparai shola, 13214.

SOLANACEAE

***Cestrum nocturnum** Linn.

Common glabrous shrub, flowers many, axillary and terminal, yellowish green, July 1961, Attakatti, 12739.

Datura stramonium Linn.

Herb with small erect white flowers and erect spinescent capsule, flowering and fruiting, Jan. 1963, Attakatti, 15614.

Petunia nyctaginiflora Juss.

Ornamental tomentose herb, flowers showy white with persistant leafy calyx, June 1962, Waverly Estate, 14207.

Solanum laeve Dunal ex Poir

Common straggling undershrub, leaves broadly elliptic, acuminate at both ends, entire, flowers white, axillary, flowers and fruits, Sept. 1961, Anamalai, 13329; fruits, Jan. 1963, Akkamalai, 15532.

SCROPHULARIACEAE

Calceolaria mexicana Benth.

Ornamental herb, naturalised, usually found in moist localities, flowers yellow with two bag shaped lips with closed mouth. October 1961, Waverly Estate, 13075.

LENTIBULARIACEAE

Utricularia flexuosa Vahl

Aquatic floating herbs without any floats but with occasional inflated upper leaf rhachises, abundant in tanks, flowers bright yellow with deflexed long pedicels, Jan. 1963, Pannimedu, 15564.

U. smithiana Wt.

Erect tall slender herb in moist places with bluish pink flowers, flowering and fruiting, Jan. 1963, Monica Estate, 15588.

BIGNONIACEAE

***Spathodea nilotica** Seem.

Tree with large showy red flowers and spathaceous tomentose calyx, Oct. 1961, Poonachi, 13236.

ACANTHACEAE

***Andrographis alata** (Vahl) Nees

An erect herb with angular branches, flowers white, fruits with reflexed pedicels, Jan. 1962, Topslip, 13837.

***Asystasia dalzelliana** Santapau

A. violacea Dalz.

Common erect herb, flowers pinkish in long racemes, Jan. 1962, Mount Stouert, 13586.

***Haplanthus neilgherryensis** Wt.

H. tentaculatus Nees var. *neilgherrensis* C. B. Cl.

Erect herb, flowers pale pink in conspicuous terminal and axillary spikes with very slender long hairy cladodes, flowering and fruiting, Jan. 1962, Yanaikundhishola, 13809.

Justicia simplex D. Don

Common herb with zig-zag branches, hairy, flowers pinkish in cylindrical long spikes, flowering and fruiting, Oct. 1961, Mount Stouert, 13381; Jan. 1962, 13588; April 1963, Akkamalai R.F., 16171.

***J. trinervia** Vahl

An erect herb, flowers white with pink dots, in short spikes, bracts white scarious margined, flowers and fruits, Jan. 1962, Akkamalai, 13775, 15545.

Strobilanthes rubicundus T. Anders.

Slender undershrub with lanceolate leaves and much branched glandular hairy panicles, nodal bracts reflexed, flowers pinkish with slender pedicels, Jan. 1963, Andiparaishola, 15623.

LAMIACEAE
(LABIATAE)

Coleus malabaricus Benth.

Succulent undershrub with long petioled large leaves, flowers bluish pink in long panicles, flowering and fruiting, Sept. 1961, Waterfalls Estate, 13325.

***Hyptis suaveolens** (Linn.) Poit.

Tall hispid herb with angular stems, flowers blue or pinkish, flowering and fruiting, Jan. 1962, Topslip, 13846; fruiting, Oct. 1961, Mount Stouert, 13366.

***Orthosiphon glabratus** Benth.

G. tomentosa Benth. var. *glabratus* Hook. f.

Erect herb, flowers white with pink tinge in whorls on long terminal racemes, July 1961, Attakatti forest, 12669.

***Pogostemon purpurescens** Dalz.

Common erect herb with zig-zag branches and unequal pair of leaves, softly hairy, flowers purplish in clusters of arcuate spikes, Jan. 1962, Yanaikundhishola, 13815.

Scutellaria colebrookiana Benth.

S. violacea Heyne var. *colebrookiana* Hook. f.

Small pubescent herb with deltoid leaves, flowers pinkish, in pairs on terminal racemes, flowering and fruiting, July 1961, Attakatti forest, 12816.

AMARANTHACEAE

***Gomphrena celocioides** Mart.

G. decumbens Jacq.

Common pubescent herbaceous weed, flowers white in globose or elongate spikes, July 1961, Waterfalls Estate, 12700.

PODOSTEMACEAE

Terniola zeylanica Tul.

Lawia zeylanica Tul.

Aquatic small thalloid herbs adpressed to the rocky substratum in running water, rare, fruits pedicelled, fruiting, Jan. 1962, Mount Stouert-Tunacadavu, 13593.

LAURACEAE

***Cinnamomum iners** Reinw. ex Bl.

Common tree with three ribbed shining leaves, flowers fragrant, yellow in long peduncled panicles, Jan. 1963, Monica Estate, 15586.

***Litsea bourdillonii** Gamble

Tree, flowers in umbles on axillary sessile clusters, June 1962, Andiparaishola, 14210.

L. floribunda Gamble

Large tree, flowers in peduncled racemose umbels, fruiting, April 1963, Kurungumudi, 16224.

Neolitsea zeylanica (Nees) Merr.

Litsea zeylanica (C. & T.) Nees

Small tree with alternate 3-ribbed leaves, flowers in umbellules of sessile clusters, April 1963, Akkamalai R. F., 16180.

EUPHORBIACEAE

Bridelia crenulata Roxb.

B. roxburghiana (Muell.-Arg.) Gehrm

Tree with axillary clusters of fruits, July 1961, Attakatti forest, 12665.

Mallotus atrovirens Muell.-Arg.

Rare tree with simple alternate dentate glabrous leaves, flowers small in axillary racemes, Jan. 1962, Kariyanshola, 13283.

Melanthesa rhamnoides (Retz.) Bl.

Breynia rhamnoides Muell.-Arg.

Large shrub with small greenish yellow flowers in the axils of leaves, flowering and fruiting, Jan. 1962, Topslip, 13840.

Phyllanthus gardnerianus Baill. ex Muell.-Arg.

Woody small herb, flowers minute, pinkish in axillary clusters, April 1963, Akkamalai R. F., 16169.

***Pseudoglochidion anamalayanum** Gamble

Small tree, leaves alternate simple, lanceolate, small, flowers greenish yellow in axillary clusters, flowering and fruiting, Jan. 1963, Kavarkal, 15600.

MORACEAE

***Ficus tjakala** Burm.

Common tree with long petioled glossy leaves, crowded at the ends of branches, receptacles very small in clusters in the axils of present and fallen leaves, July 1961, Attakatti forest, 12726; Jan. 1962, 13549.

URTICACEAE

***Boehmeria malabarica** Wedd.

Small shrub with alternate leaves, flowers very small in axillary clusters, Jan. 1963, Thonimudi, 15555.

***Elatostemma lineolatum** Wt. var. **falcigera** Thw.

Very common small herb in moist localities, leaves small, linear lanceolate with few teeth at the end, flowers minute in axillary clusters, greenish white, Sept. 1961, Anamalais, 13328.

***Pouzolzia auriculata** Wt.

Undershrub with pinkish stems and petioles in moist localities, flowers small, hairy in axillary clusters, July 1961, Attakatti forest, 12658.

ORCHIDACEAE

Cheirostylis flabellata Wt.

Small simple terrestrial herb, decumbent and succulent at base, inflorescence finely hairy, flowers

white crowded at the apex, rare on shady humus soil, Jan. 1963, Attakatti forest, 15599.

***Dendrobium aqueum** Lindl.

Epiphytic caespitose herb with infundibular persistant scaly leaf bases, young fruits 1 or 2 in each node with marcescent perianth, bereft of leaves during flowering, young fruits, Jan. 1962, Akkamalai R. F., 13781.

***D. barbatulum** Lindl.

Common epiphytic caespitose slender herb, flowers light yellow in short racemes, leafless when flowering, Jan. 1963, Pannimedu, 15566.

D. herbaceum Lindl.

Epiphytic branched pendulous herb, flowers in very short racemes, leafless when flowering, Jan. 1963, Thonimudi, 15567.

***Epipogium roseum** (D. Don) Lindl.

E. nutans Reich. f.

Saprophytic leafless terrestrial herb with tuberous root, flowers dull white with pinkish streaks, Jan. 1962, Yanaikundhishola, 13820.

***Eria pauciflora** Wt.

Common epiphytic small herb with 2-3 leaves and plurinodal stem of pseudobulbs, flowers white, June 1962, Andiparaishola, 14212.

E. reticosa Wt.

Epiphytic small herb with depressed globose pseudobulbs enclosed in a net like sac, flowers white, fruits with marcescent perianth, flowering, Sept. 1961, foot of Anamalais 13332; fruiting, Oct. 1961, Waterfalls Estate forest, 13245.

Goodyera procera Hook.

Common terrestrial tall leafy herb in moist places, flowers white in dense spike, Jan. 1963, Thonimudi, 15551, April 1963, 16230.

Malaxis versicolor (Lindl.) Abeywicker

Microstylis versicolor Lindl.

M. rheedii Wt.

Very common terrestrial herb in shady places, not bulbous at the base as Fyson mentions (1932), flowering, June 1962, Andiparaishola, 14216, 14148; July 1960, Waverly Estate, 10097; July 1961, Attakatti, 12741.

***Oberonia anamalayana** Joseph

A new species, epiphytic herb in clusters, flowers pedicellate greenish yellow in long erect spikes, Jan. 1961, Waverly Estate forest, 13537 A. *Holotype*, 13537 B-J. *Isotypes*; Jan. 1963, Valparai, 15570.

O. brunoniana Wt.

Common epiphytic caespitose herb, flowers sessile, dull brown or pale yellowish, Oct. 1961, Waverly Estate, 13074, fruiting, Sept. 1962, Andiparaishola, 17476.

O. wightiana Lindl.

Epiphytic herb, flowers shortly pedicelled, fruiting, April 1963, Akkamalai, 16202.

Saccolabium gracilis Lindl.

Epiphytic leafy herb with zig-zag stem, fruiting, April 1963, Kadamparai, 16233.

***Sirhookera lanceolata** (Wt.) O. Ktze.

Josephia lanceolata Wt.

Epiphytic tufted herb with white flowers, July 1960, Waverly Estate, 10099; fruiting, Jan. 1963, Akkamalai R.F., 15544.

***S. latifolia** (Wt.) O. Ktze.

Josephia latifolia Wt.

Epiphytic herb with pale yellow flowers, June 1962, Andiparaishola, 14144.

CANNACEAE

***Canna orientalis** Rosc.

Erect herb, leaves broad with sheathing base, flowers showy yellowish in terminal spikes, Oct. 1961, Waterfalls Estate, 13244.

LILIACEAE

Iphigenia indica (Linn.) A. Gray

Small erect tuberous herb in open grass lands, leaves linear, flowers chocolate brown, flowering and fruiting, July 1961, Attakatti forest, 12744.

COMMELINACEAE

Commelina clavata C. B. Cl.

Common prostrate hirsute herb in moist places, flowers blue with broad spathe, Jan. 1962; Topslip, 13847.

***C. imberbis** Ehrenb. ex Hassk.

C. jacobii Fischer

Prostrate herb, leaves ovate lanceolate, sub-cordate, spathe stalked, flowers blue, flowering and fruiting, Oct. 1961, Mount Stouert, 13357.

***C. undulata** R. Br.

C. kurzii C. B. Cl.

Common stout prostrate herb, nearly glabrous, spathe sessile, fruiting, Sept. 1961, Anamalais, 13317.

Cyanotis cerifolia Rolla Rao et Kammathy

A new species, common in rocky crevices in open sunny places, succulent, robust prostrate herb, forming a weed in coffee plantations, August 1962, Waverly Estate; this has been critically studied in cultivation raised by cuttings at Poona and described as new species.

***Murdannia esculenta** (Wall. ex C. B. Cl.) Rolla et Kammathy

Aneilema esculenta Wall. ex C. B. Cl.

Succulent herb with linear short leaves, flowers pinkish blue in terminal branched panicles, July 1961, Waterfalls Estate, 12695; flowering and fruiting, Sept. 1961, Anamalais, 13318.

M. simplex (Vahl) Brenan

Stout herb with very long linear leaves, flowers in long peduncled panicles, fruiting, Sept. 1961, Anamalais, 13316.

JUNCACEAE

Juncus prismatocarpus R. Br.

Very common erect herb in marshy places, flowers pinkish, small in clusters of branched peduncled cymes, Jan. 1963, Thonimudi, 15556; April 1963, Akkamalai, 16188.

ARACEAE

***Pothos armatus** Fischer

Climbing shrub with adventious rootlets of spines, leaves elliptic-lanceolate, flowers distant on slender spadix, greenish brown, Jan. 1963, Valparai, 15580.

ERIOCAULACEAE

Eriocaulon collinum Hook. f.

Small herb in tufts in marshy places, peduncles few to many, heads globose, ashy black, April 1963, Akkamalai Grass hills, 16189.

E. ensiforme Fischer

Common herb in marshy places with long ensiform leaves, peduncles solitary, very long, heads ashy, Jan. 1963, Pannimedu, 15562.

CYPERACEAE

Cyperus dubius Rottb.

Mariscus dubius Kuk.

Tufted herb in marshy places with thickened stem at base, head globose; solitary, dull white, July 1961, Attakatti, 12690.

***C. iria** Linn.

Tall herb in moist localities, leaves shorter than the stems, bracts 3-5, long leafy, inflorescence branched with irregularly fascicled umbels of spikelets, flowering and fruiting, Oct. 1961, Mount Stouert, 13352; June 1962, Attakatti, 14153.

***C. kyllinga** Endl.

Kyllinga monocephala Rottb.

Very common herb with elongate rhizome, leaves as long as or slightly shorter than the peduncles, bracts three, long, leaf like, heads ovoid, solitary, ashy brown, Oct. 1961, Mount Stouert, 13400.

C. pumilus Linn.

Pycreus pumilus Dom.

P. nitens Nees

Slender tufted herb in moist localities, leaves filiform, spikelets sessile with cuspidate glumes, flowering and fruiting, Oct. 1961, Mount Stouert, 13354.

Fimbristylis kingii C. B. Cl.

Common slender tufted herb in moist places among grasses, sparsely hairy, leaves filiform, channelled, spikes globose, brownish, flowering and fruiting, April 1963, Akkamalai Grass hills, 16192.

***F. tetragona** R. Br.

Small tufted herb in marshy places without leaves, and with leaf sheaths at base, spikes small, globose, brownish, flowering and fruiting, Jan. 1963, Attakatti, 15612.

POACEAE
(GRAMINEAE)

Brachiaria reptens (Linn.) Gard. et C. E. Hubb.

Urochloa reptans (Linn.) Stapf

Panicum prostratum Lamk.

Common herbaceous grass, rooting at lower nodes, leaves hairy, spikes many in terminal panicles, flowering and fruiting, Oct. 1961, Andiparaishola, 13210.

***Chrysopogon hackelii** (Hook. f.) C. E. C. Fischer

Tall robust herb, pedicels chocolate brown hairy, sessile, spikelets with long twisted awn, flowering and fruiting, Oct. 1961, Mount Stouert, 13391.

***Dactyloctenium aegyptium** (Linn.) P. Beauv.

Eleusine aegyptiaca Desf

Prostrate herb with rooting at lower nodes, spikes in terminal umbels, spikelets greenish, flowering and fruiting, Oct. 1961, Mount Stouert, 13335.

***Dimeria ornithopoda** Trin.

Erect slender herb in moist places, leaves sparsely hairy, spikes usually two, spikelets brownish, flowering and fruiting, Jan. 1962, Attakatti, 13564.

***Eleusine indica** (Linn.) Gaertn.

Erect herb, spikes in one whorl with usually a solitary spike below the umbel, rhachis of spike slender, glabrous, spikelets greenish, flowering and fruiting, Oct. 1961, Mount Stouert, 13337; June 1972, Navamalai, 14174.

***Garnotia arundinacea** Hook. f.

Tall slender erect herb, leaves flat, broad at the base with long acuminate tip, nodes hairy, panicles branched, spikelets greenish with filiform awns, drying pale pinkish or violet, flowering and fruiting, Jan. 1961, Lower Poonachi, 13542.

***Garnotia stricta** Brongn.

Tall slender herb, leaves narrowed to the base, spikelets minute pinkish, flowering and fruiting, Oct. 1961, Mount Stouert, 13386.

***Pogonatherum paniceum** (Lamk.) Hack.

P. saccharoideum Beauv.

Common erect herb in tufts, spikes terminal, solitary, with long hair like awns, spikelets pale brownish, callus white hairy, flowering and fruiting, April 1963, Varattuparai near Monica Estate, 16217.

Themeda tremula (Nees ex Steud.) Hack.

Anthistiria trenula Nees ex Steud.

Tall herb, spikelets in wedge shaped bunches of racemiform panicles, flowering and fruiting, Jan. 1962, Akkamalai, 13776.

Tripsacum laxum Nash

Tall herb, introduced but running wild and also cultivated in tea estate as a soil binder, inflorescence lax, male racemes flexuous, flowering and fruiting, Jan. 1963, Valparai, 15571.

Zenkeria elegans Trin.

Common tall herb with terminal loose panicles, spikelets pale pinkish, hairy, flowering and fruiting, July 1961, Waterfall Estate forest, 12708.

FERNS AND FERN ALLIES

LYCOPODIACEAE

Lycopodium macrostachys Hook.

Robust epiphytic pendulous herb in tufts on tree trunks and branches, leaves simple, verticillate, shining, strobilii many, greenish, not common, sporangia July 1961, Attakatti forest, 12750.

PTERIDACEAE

Adiantum cuneatum Lang. & Fisch.

Terrestrial herbaceous fern in tufts with black or pale shining glabrous stipes, scales brownish, fronds pinnately compound, delicate, pinnules cuneate at base with marginal sori, brownish, July 1961, Lower Poonachi, 12782.

Microlepia strigosa (Thunb.) Pr.

Tall terrestrial fern, fronds and stripes with minute scales, pinnules pinnatifid with long scattered hairs on the veins, involucres half cup shaped, hairy, sori brownish, Jan. 1963, Akkamalai R. F., 15541.

Pellaea concolor Lang. & Fisch.

Terrestrial herb, stipes brownish black, glabrous, shining, scaly at the base only, fronds deltoid, cut down nearly to the base, pinnules glabrous, lobed with linear oblong segments, sori in marginal lines, dark brownish, July 1971, Waterfalls Estate forest, 12709.

ASPIDIACEAE

Athyrium solenopteris (Kunze) Moore

Erect herb with tufts of straw coloured stipes, fronds lanceolate with pinnatifid pinnae, glabrous, sori brownish, Oct. 1961, Waverly Estate forest, 13087.

Diplazium muricatum (Mett.) v.A. v.R.

D. umbrosum Sm. var. *australe* R. Br.

Herb, stipes straw coloured, fronds tripinnatifid, sori on veins near midrib, brownish, Jan. 1963, Puduthottam Estate, 15593.

Hypodematium crenatum (Forsk.) Kukn.

Polypodium crenatum Forsk

Nephrodium oderatum Baker

Herbaceous fern, stipes straw coloured, glossy, densely clothed at the base with a tuft of golden, lanceolate linear scales, fronds 3-4 pinnate, rhachis and pinnules pilose, sori on the veinlets, inducium pale villous, July 1961, Waterfalls Estate, 12809.

POLYPODIACEAE

Pyrrosia mollis (Kunze) Ching

P. porosa Wall.

Niphobolus fissus Bl.

Epiphytic small herbaceous fern with creeping rhisome, fronds simple, entire lanceolate, tomentose with ferruginous stellate hairs, sori copious, immersed in the tomentum, brick red, July 1961, Waterfalls Estate forest, 12702.

SALVINIACEAE

Azolla pinnata R. Br.

Very minute aquatic floating herb with solitary roots at lower altitudes, leaves 2-ranked, deeply two lobed, sori paired, June 1962, Navamalai 14196.

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